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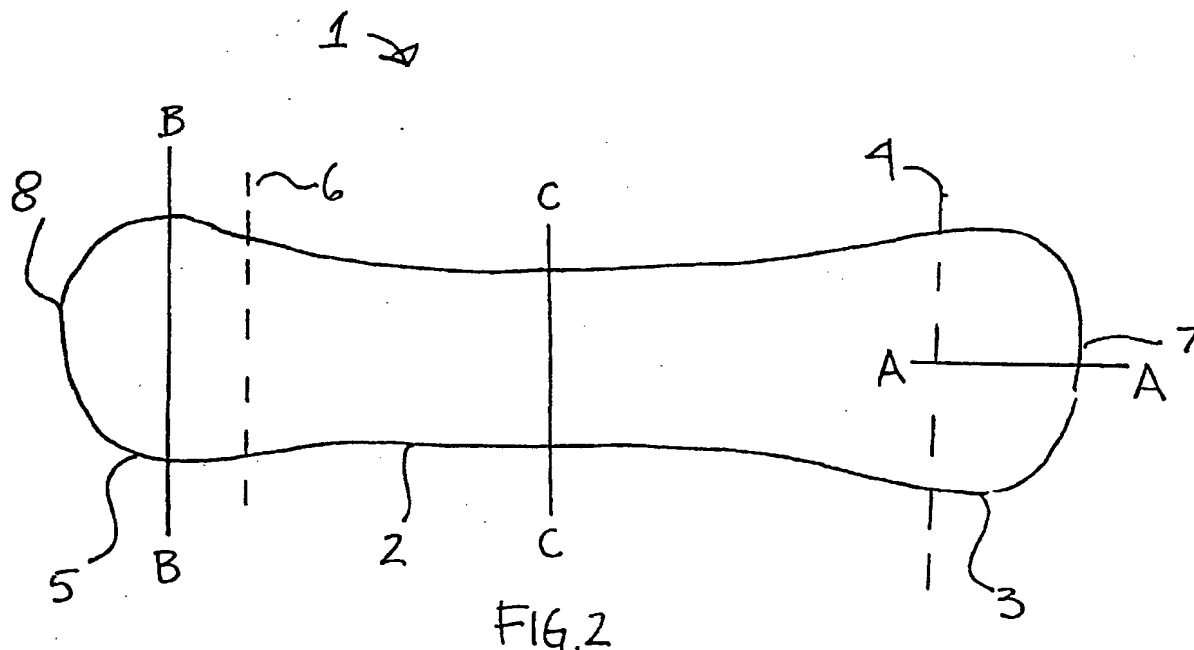
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(54) **Gliding board with varying bending properties**

(57) A gliding board, such as a snowboard, has improved lift or float in certain conditions, e.g., when gliding in powdered snow. A nose and/or tail of the gliding board may have a variable bending property to provide the improved float. In one embodiment, the nose and/or

tail may have a tapered thickness or other features so that the nose and/or tail is more flexible toward the tip of the nose or tail. Other variable bending properties in the nose and/or tail may be provided for reasons other than improved float, such as to enhance trick or other maneuver performance.



**FIG. 2**

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## Description

### Field of the Invention

[0001] The present invention relates generally to a gliding board and, more particularly, to a gliding board with varying bending properties.

### Background of the Invention

[0002] Specially configured boards for gliding along a surface are known, such as snowboards, snow skis, water skis, wake boards, surfboards and the like. For purposes herein, "gliding board" refers generally to any of the foregoing boards as well as to other devices which allow a rider to traverse a surface. For ease of understanding, however, and without limiting the scope of the invention, aspects of the invention are discussed below particularly in connection with a snowboard.

[0003] A typical snowboard includes a running length extending between opposite nose and tail ends. The nose and tail ends may have a "shovel" shape where the board end curves upwardly generally avoiding contact with the snow when riding on smooth terrain. The location at which the ends curve upward and away from the running length of the board is commonly called a transition or contact area.

[0004] The nose and/or tail provide an important function when riding over curved or bumpy surfaces, and when riding in deep snow. When riding on curved or bumpy surfaces, the nose and/or tail can prevent the leading end from digging into the curve or bump, and instead allow the board to glide up a curve or over a bump. When riding in deep snow, the leading end of the snowboard (usually the nose) is upturned and contacts the snow so that the board does not dive under the snow surface. That is, the upturned nose forces snow under the board and keeps the board from sinking excessively into the snow. This ability of the board to force a proper amount of snow under the board and keep the rider at a suitable position relative to the surface of deep snow is commonly called "float." To improve float in deep snow, some cap-type construction boards have been provided with a core that has a tapered thickness at the nose. This tapered thickness of the core results in a cap-type board having a nose that increases in flexibility from the transition or contact area toward the tip of the nose. This increased flexibility allows the nose to flex upward to a varying degree along the nose when contacted by snow, thereby increasing the frontal area on the nose and the amount of lift provided to the board.

[0005] A cap-type snowboard is typically constructed from several components including a core, e.g., made of wood, top and bottom reinforcing layers that sandwich the core, a top cosmetic layer and a bottom gliding surface, or base. The top reinforcing layer typically overlaps the side edges of the core to protect the core from the environment and provide structural support to the board.

Since the core in a cap-type board typically extends into the nose and tail ends of the snowboard, tapering the core at the nose end results in a board having a tapered nose and improved float.

[0006] Another construction type of snowboard is the sidewall-type board. Similar to a cap board, sidewall boards typically have a core, top and bottom reinforcing layers, a top cosmetic layer and a bottom gliding surface. However, in contrast to cap boards, the top reinforcing layer does not cover the side edges of the core. Instead, a sidewall support member is positioned between the top and bottom reinforcing layers (and/or a metal edge at the bottom of the board). The sidewall is bonded to the top and bottom layers to protect the interior of the board, including the core, from the environment. The core in sidewall boards does not normally extend into the nose and tail ends of the board. Instead, the core terminates near the transitions at the nose and tail, and a spacer made from a flat sheet material is positioned between the top and bottom reinforcing layers in the nose and tail. The spacer typically has a constant thickness and forms a significant portion of the thickness of the nose and tail ends. Thus, prior sidewall-type boards have not been provided with a tapered nose or other features to improve the float of the board.

### Summary of the Invention

[0007] One illustrative embodiment in accordance with the invention provides a gliding board for traveling over powder or soft snow with increased lift or float. The gliding board includes a running length that extends into opposite ends, two edges and a sidewall extending along at least a portion of one edge of the running length. A nose is located at one end of the board, and a tail is located at the other end. The nose and tail each have a transition end near the running length and a tip end opposite the transition end. At least one of the nose and tail has varying bending properties to provide improved float of the board. For purposes herein, "bending properties" refers to a property such as the flexibility, bending modulus, flexural rigidity or any other bending property that may be varied over a span of the nose or tail. For example, the varying bending properties may include a flexibility of the nose or tail that changes over the nose or tail. The bending properties of the nose or tail may vary in any suitable way.

[0008] According to one aspect of the invention, the nose or tail may include a structural element that has at least one feature that provides the varying bending property. In some embodiments, the feature may include one of a varying thickness, a hole, a groove, a varying material property, or a change in material. In one embodiment, the bending property may vary along a width of the nose or tail.

[0009] In another illustrative embodiment, a gliding board, adapted to cooperate with a pair of foot bindings that secure a rider's feet to the snowboard, includes a

running length having two side edges extending between forward and rear transitions. The running length has a sidewall extending over at least a portion of the side edges. An upturned nose is positioned at the forward transition and has a transition end and a tip end. The nose has a cap construction and a flexibility that varies between the transition end and the tip end.

[0010] According to one embodiment, the nose and/or the tail has a thickness that varies along a length of the nose or tail. The thickness may decrease between the transition and the tip. In some cases, an overall thickness of the nose may decrease from approximately 5-8mm near the transition end to approximately 4-7mm near the tip.

[0011] According to one embodiment, the nose or tail may be more flexible near the tip than near the transition end. According to another embodiment, the flexibility of the nose or tail may decrease from near the transition end to near the tip. In another embodiment, the nose and tail may have a varying bending property that is different from the other.

[0012] According to one embodiment, the gliding board may further include a core that extends from the running length at least partially into the nose, and a thickness of the core within the nose may decrease between the forward transition and the tip. In some cases, the core thickness may decrease from approximately 2mm near the forward transition to approximately 1 mm near the tip.

[0013] In another embodiment, the nose or tail may be sidewall-free and formed with a cap structure. In another embodiment, the gliding board may be a snowboard. According to another embodiment, the gliding board may have two foot bindings mounted to the running length. In yet another embodiment, the tail of the gliding board may be upturned.

[0014] In another illustrative embodiment, a method of manufacturing a gliding board having a running length and an upturned nose joined to the running length at a transition includes providing a core constructed and arranged for incorporation into a gliding board. The core has top and bottom surfaces and lateral sides. At least one sidewall element, a top reinforcement layer and a bottom reinforcement layer are also provided, and the top reinforcement layer, the bottom reinforcement layer, the at least one sidewall and the core are assembled together. The gliding board is assembled so that (i) the top and bottom reinforcement layers are on opposite top and bottom surfaces of the core, (ii) the at least one sidewall element is secured along a lateral side of the core, and (iii) the nose has varying bending properties.

[0015] In another illustrative embodiment, a gliding board includes a running length formed, at least in part, with a sidewall construction, and an upturned nose located at one end of the running length. The nose includes means for providing the nose with a varying bending property.

[0016] These and other aspects of the invention will

be appreciated from the following description and claims. It will be apparent to those of skill in the art that the various aspects of the invention discussed above and described below in the detailed description may be combined in any suitable manner.

### **Brief Description of the Drawings**

[0017] It should be understood that the drawings are provided for the purpose of illustration only and are not intended to define the limits of the invention. Various aspects of the present invention will become apparent with reference to the following detailed description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a side view of a gliding board comprising a nose having varying bending properties in accordance with one aspect of the invention;

Fig. 2 is a top view of the board of Fig. 1;

Fig. 3 is a cross-sectional view of the board of Fig. 1 taken along section line A-A shown in Fig. 2;

Fig. 4 is a cross-sectional view of the board of Fig. 1 taken along section line B-B shown in Fig. 2;

Fig. 5 is a cross-sectional view of the board of Fig. 1 taken along section line C-C shown in Fig. 2; and

Fig. 6 is a perspective view of a gliding board end having a spacer in accordance with another embodiment.

### **Detailed Description**

[0018] In one illustrative embodiment in accordance with the invention, a nose or tail of a sidewall constructed gliding board is configured with varying flex properties to affect the float or lift performance of the board in deep snow or powder. For example, the gliding board may have a sidewall construction along a portion of the running length of the board, and a cap construction at the nose and/or tail with a varying bending property, e.g., flexibility, in either the nose or tail. The bending properties may vary in any direction within the nose or tail, and may vary linearly, non-linearly, continuously, in a step-wise manner, or in any suitable manner. Thus, the bending property of the nose or tail may vary longitudinally and/or laterally, providing desired lift or float characteristics when gliding, particularly in powder or soft snow, since the nose or tail may flex when contacting snow or other material to present an increased surface area. A hybrid sidewall/cap construction of the board can provide some of the desired characteristics of an all sidewall construction board, such as easier repair, resistance to damage at the edges, and improved shock absorption, while also providing some of the advantages of a cap-type construction, such as simplified manufacturing techniques, improved responsiveness of the board in turning, etc.

[0019] In one illustrative embodiment, at least one end (nose or tail) of the board may be more flexible near

the tip than near the transition to the running length of the board. The more flexible tip of the end may bend to provide a greater surface area against which the snow or other material may impact and force snow to travel under the board. For example, the increased surface area created by flexing may increase the force of snow or other material urging the end upward during gliding, thereby increasing the lifting force on the board. The stiffer portion of the nose or tail near the transition to the running length may resist large amounts of bending and more directly and effectively transfer force of the snow on the more flexible tip end to the running length of the board.

**[0020]** In one illustrative embodiment, the board nose and/or tail includes a structural element that has at least one feature to provide the nose and/or tail with varying bending properties. For example, the structural element may be a part of the board core or any other single constituent part or material, or group of parts or materials, in the nose or tail. The features of the structural element that provide the varying bending properties can include a tapering in thickness of the element, grooves, holes or other physical features formed in the element, a change in material or material properties in the element or any other suitable features. For example, the material type or density of the core or the reinforcing layers may be varied over the areas of the nose and tail, or varying amounts or types of reinforcement fibers or embedded materials may be added to the core in different areas to change the local bending properties of the nose and tail. The bending properties may also be varied by controlling the amount or type of adhesives used to attach the various layers of the board.

**[0021]** In one illustrative embodiment, an end (nose or tail) of the board decreases in overall thickness from near the transition toward the tip. For example, in one embodiment, the nose may taper approximately 1 mm in thickness over an approximately 150 to 200 mm length. This taper in overall thickness may result in increased flexibility of the end, e.g., to allow the end to flex further upwards when gliding in deep snow. The thickness of the nose or tail near the transition may not be needed over the entire area of the nose or tail and thus, the thickness may taper because the nose and tail typically experience less stress closer to the tip. A decreasing thickness in the nose or tail may give the board the required structural integrity while allowing an increased and/or differential flexibility in the nose or tail. The tapering thickness may be formed in any suitable way. For example, the board core may taper at the nose or tail, or the core may have a constant thickness and other board components may vary in thickness. The thickness of the core and/or board may vary in the lateral direction instead of, or in combination with, the longitudinal direction to provide varying flexibility in a lateral direction.

**[0022]** An illustrative embodiment of a gliding board 1 shown in Fig. 1 has a nose 3 and tail 5 at opposite ends of a running length 2. The nose 3 and tail 5 meet respec-

tive ends of the running length 2 at a transition, or contact area, shown generally at 4 and 6. At or near a first transition 4, the board 1 transitions from the running length 2 to the upturned nose 3. At or near a second transition 6, the board 1 transitions from the running length 2 to the upturned tail 5. In this illustrative embodiment, the nose 3 has a varying bending property along its length and/or width, resulting in a nose 3 that provides improved lift or float when gliding in certain conditions, such as powder snow. Although the tail 5 in this embodiment does not have a varying bending property, the tail 5 may have varying bending properties similar to that in the nose 3, e.g., the board 1 may have the same float when ridden either nose-first or tail-first (normal or switch). Alternately, the nose 3 may not have varying bending properties and the tail 5 may have such properties. Further, both the nose 3 and the tail 5 may have varying, but differing, bending properties. In short, any suitable combination of bending properties in the nose 3 and/or tail 5 may be used.

**[0023]** The board 1 may be made to have little or no upturn at the tail 5, and the shape and/or size of the upturn at the nose 3 or tail 5 may be balanced with the bending properties of the nose 3 and/or tail 5. For example, the nose 3 or tail 5 may be curved at a suitable radius and/or arc length to cooperate appropriately with the bending properties of the nose 3 or tail 5 and/or the intended use of the board 1. Of course, the nose 3 and/or tail 5 need not be curved at a single radius. Instead, the nose 3 or tail 5 may have a variable radius, may be approximately straight and arranged at an angle to the running length 2, and so on.

**[0024]** Fig. 2 shows a top view of the Fig. 1 embodiment, and Fig. 3 shows a cross-section of the nose 3 of the board 1 at the line A-A shown in Fig. 2. In this embodiment, the nose 3 includes a core 25 that tapers, i.e., becomes thinner, from near the transition 4 toward the tip 7 of the nose 3 and is sandwiched between top and bottom reinforcing layers 22 and 27. In one embodiment, the core 25 may taper from a thickness of approximately 2 mm near the transition 4 to approximately 0.8 - 1 mm near the tip 7. This taper of the core may result in an overall thickness of the nose 3 that is approximately 5-8 mm near the transition 4 and tapers over approximately a 15-20 cm length to approximately 4-7 mm near the tip 7, depending upon the thickness of the top and bottom reinforcing layers 22 and 27, a base, decorative top sheet, or other elements. Of course, the thickness of the core 25 and/or of the nose 3 overall may be varied within any suitable range. In addition as discussed more fully below, the board 1 may be made in any suitable manner using any suitable materials or techniques that are well known in the art. For example, although not shown for clarity, the board 1 may include metal edges around the periphery of the bottom reinforcing layer 27, one or more decorative layers on the top reinforcing layer 22, or a base material or sole under the bottom reinforcing layer 27 to provide a sliding surface. In addition,

the core 25 need not extend all the way to the tip 7, but instead may terminate at some point between the transition 4 and the tip 7, or before the transition 4. If the core 25 terminates before the tip 7, another element may be placed between the top and bottom reinforcing layers 22 and 27, e.g., to separate the layers 22 and 27 and provide the nose 3 with varying bending properties.

[0025] Since the core 25 tapers in this embodiment, the overall thickness of the nose 3 also tapers (although not necessarily) and the nose 3 has a varying flexibility from the transition 4 toward the tip 7. That is, in this embodiment, the nose 3 is more flexible near the tip 7 than near the transition 4. As discussed above, the varying bending properties of the nose 3 and/or tail 5 may be provided in any suitable way apart from that shown in this illustrative embodiment. For example, the core 25 may have a constant thickness, or approximately constant thickness, from near the transition 4 to the tip 7, and other portions of the board 1 may be varied in thickness or other properties to provide the varying bending properties. The core 25 or other structural element in the nose 3 may include grooves, holes or other physical features, a change in material or material properties or any other suitable feature to provide the desired bending properties. For example, the material type or density of the core 25 or the reinforcing layers 22 and 27 may be varied over the areas of the nose 3 and tail 5. Varying amounts or types of reinforcement fibers or embedded materials, e.g., elastomers, metallic strips or other elements, different types of wood, etc., may be added to the core 25 in different areas to change the local bending properties in the nose 3. The bending properties may also be varied by controlling the amount or type of adhesives used to attach the various layers of the board.

[0026] Although the bending properties of the nose 3 or tail 5 preferably include a variation in flexibility from more stiff near the transition to more flexible near the tip, the bending properties may be arranged in other ways. For example, the flexibility of the nose 3 or tail 5 may be high near the transition, drop toward the middle of the nose 3 or tail 5, and then stay constant to the tip, e.g., to prevent breakage of the nose 3 or tail 5. Alternately, the flexibility may be high near the transition, drop near the middle of the nose 3 or tail 5, and then increase toward the tip, e.g., to create a zone in the middle of the nose 3 or tail 5 where a majority of flexing will take place. The bending properties of the nose 3 in the Fig. 1 embodiment are described as varying longitudinally from the transition 4 to the tip 7, but the nose 3 may have varying bending properties in the lateral direction either in addition to, or in place of, varying bending properties in the longitudinal direction. Bending of the nose 3 or tail 5 may be elastic, e.g., to allow a rider to store energy in the nose 3 or tail 5 for various tricks or other maneuvers, or damped to some extent, e.g., to prevent severe vibration of the nose 3 or tail 5.

[0027] Fig. 4 shows a cross-sectional view of the board 1 along the line B-B in Fig. 2. In this embodiment,

the board 1 has a cap-type construction in the nose 3 and tail 5, and thus the cross-sectional view of the tail 5 at the line B-B is similar to a corresponding cross-sectional view of the nose 3. As is typical with cap-type construction, the top reinforcing layer 22 overlaps the sides of the core 25 and comes in contact with, and is bonded to, the lower reinforcing layer 27. If a metal edge (not shown) is used at the lower edges of the board 1, the top reinforcing layer 22 may be bonded to the metal edge instead of, or in addition to, the bottom reinforcing layer 27. In this configuration, the top reinforcing layer 22 and its attachment to the lower reinforcement layer 27 at edges 40 of the gliding board 1 provide lateral support to the gliding board 1. Fig. 4 also shows a top decorative layer 21 on the top reinforcing layer 22, and a base 26 on the lower reinforcement layer 27. However, these layers are optional, e.g., a decoration may be incorporated into the top reinforcing layer 22, or may be included along with other additional layers, whether structural or decorative. The cap construction in the nose 3 and the tail 5 may extend from the tip 7 or 8 past the transitions 4 and 6 into the running length 2 of the gliding board 1 or terminate in the nose 3 or the tail 5.

[0028] While the nose 3 and/or the tail 5 may have a cap construction, at least one portion of one side of the running length of the board 1 includes a sidewall or sidewall construction. In short, the portion of the board 1 having a sidewall construction may have any suitable construction (many of which are well known in the art) that includes a sidewall element that is not covered on a side surface by a top reinforcing layer (e.g., similar to the way the top reinforcing layer wraps over the edge of the core 25 in Fig. 4). The sidewall construction need not be continuous along both sides of the board 1, but rather the board 1 may have several segments having a sidewall that are separated by board portions having other constructions, such as cap construction. For example, the board 1 may have a sidewall construction in separate segments near each foot binding, but have cap construction over other portions of the board 1. Moreover, a sidewall need not be used in at least one portion on both sides of the board 1. Instead, only one side of the board 1 may include one or more sidewall portions.

[0029] Fig. 5 shows a cross-section of the illustrative embodiment of the Fig. 1 board at the line C-C shown in Fig. 2. In this illustrative embodiment, the board 1 has sidewalls 20 at both edges of the board 1 that extend along the running length 2 to near the transitions 4 and 6. The portion of the board 1 at the line C-C includes a core 25 made of a suitable material, such as foam, wood, a honeycomb material, a fiberglass/resin matrix, or a molded thermoplastic structure. The core 25 may be made as a one-piece member that extends from the tail 5 to the nose 3, or may include a plurality of portions, e.g., a core portion for the running length and one or more other portions for the nose 3 and tail 5. Along the sides of the board, situated laterally of the core 25, are the sidewalls 20 that provide lateral support to the glid-

ing board 1. The sidewalls 20 have a top surface 28, a bottom surface 29, an interior lateral surface 30 and an exterior lateral surface 31. The exterior lateral surface 31 may be constructed to be perpendicular to the bottom surface 29, or it may form an acute or obtuse angle with the bottom surface 29. In this illustrative embodiment, the exterior lateral surface 31 forms an acute angle with the bottom surface 29. A top reinforcing layer 22 overlies the top surfaces 28 of the sidewalls 20 and the core top surface 33. An optional cosmetic layer 21 overlies the top reinforcing layer 22, and a bottom reinforcing layer 27 is attached to the bottom surfaces 29 of the sidewalls 20 and the core bottom surface 35. A bottom gliding surface 26 is attached to the bottom reinforcing layer 27 and may be formed from a sintered or extruded plastic or other appropriate material. It is to be understood that the invention is in no way limited to the illustrative embodiment described above. Any appropriate arrangement of layers, materials or other elements may be used to form the sidewall portion, or any other portion of the board 1.

[0030] Since the board 1 in this illustrative embodiment includes at least one portion with a sidewall construction and a nose 3 and tail 5 having a cap construction, a transition between sidewall construction portions and cap construction portions is made. The transition may take place gradually, e.g., the sidewall 20 may taper or step down in thickness at the transition between sidewall and cap portions. Alternately, the transition may occur abruptly, e.g., the sidewall 20 may be cut off squarely at the ends. The transitions between sidewall and cap construction may occur within the nose 3 and/or tail 5 of the board 1, or within the running length 2 of the board 1.

[0031] In lieu of cap construction within the nose 3 and/or tail 5, a sidewall-type construction may be used in the nose 3 or tail 5. Thus, the board 1 may be made to have a sidewall construction throughout. Fig. 6 shows an illustrative embodiment of a nose 3 having a sidewall-type construction. In this embodiment, the nose 3 has a tapered thickness to provide the varying bending properties in the nose 3. As is well known, the core of an all-sidewall construction board typically does not extend into the nose 3 of the board 1. Instead, a spacer 45 (typically a sheet plastic material) is used to separate and bond the top and bottom reinforcing layers 22 and 27. However, in contrast to previously known sidewall-type boards, in this embodiment, the spacer 45 may be tapered, e.g., along the length of the spacer 45, so that the nose 3 tapers between the transition 4 and the tip 7. Alternately, the spacer 45 may be provided with holes, indentations, grooves, slots or other physical features to provide the nose 3 with varying bending properties. As further options for providing the nose 3 with varying bending properties, varying amounts or types of reinforcement fibers or embedded materials may be added to the spacer 45 or other portions of the nose 3 in different areas to change the bending properties.

[0032] As discussed above, the gliding board 1 may

be made in any suitable way, e.g., similar to that for skis or snowboards. The gliding board 1 may have metal edges, a plastic base material, vertical or horizontal wood laminate core or foam core material, and so on. An exemplary board 1 would include a vertical laminate wood core surrounded by one or more fiber layers for torsional control. A sintered, extruded or graphite base is provided on the snow contacting surface of the board 1 while a plastic, preferably opaque, top sheet for protecting the core and laminate from abrasion and from exposure to ultraviolet light is arranged on the opposite surface. Sidewall or mixed sidewall/cap construction may be employed to protect the core. Stainless steel edges may be included to enhance edge grip. The board 1 may be arranged with a fully distinct nose and tail for directional riding or, instead, with identical shaped tips (and flex patterns) at both ends for matched riding with either the nose or tail forward. The board 1 may have a sidecut for ease of turning the sliding device, and or camber, e.g., to even the contact pressures on the board 1 along the running length. Preferably, the nose and tail are upturned in a shovel arrangement.

[0033] The gliding board 1 may be a snowboard that is symmetric or asymmetric about section lines A-A and C-C as shown in Fig. 2, and may be used in combination with any suitable foot bindings to secure a rider's feet to the board 1. For example, a pair of tray snowboard bindings having two or more foot straps, a highback, toe pad and other known elements may be secured to the board 1 in any suitable way, such as by a holddown disk. Of course, the present invention is not limited to any particular type of binding and/or any other particular elements, as the bindings may be step-in bindings, plate bindings, or any other type of device used to attach a rider's foot to a board 1, whether the rider is wearing soft or hard boots.

[0034] Having described particular embodiments of the invention in detail, various modifications and improvements will readily occur to those skilled in the art. Such modifications and improvements are intended to be part of this disclosure and within the spirit and scope of the invention. Accordingly, the foregoing description is by way of example only and the invention is defined by the following claims and their equivalents.

## Claims

1. A gliding board (1) comprising:

a running length (2) having opposite ends, two edges and a sidewall (20) extending along at least a portion of one edge of the running length;  
a nose (3) located at one end of the running length (2); and  
a tail (5) located at the other end of the running length, characterized in that the nose (3) and

tail (5) each have a transition end near the running length (2) and a tip (7,8) opposite the transition end, at least one of the nose (3) and tail (5) having a varying bending property that affects a performance characteristic of the board (1).

2. The gliding board of claim 1, **characterized in that** the bending property varies along a width of the nose or tail.

3. The gliding board of any one of the preceding claims, **characterized in that** the nose or tail includes a structural element having at least one feature that provides the varying bending property.

4. The gliding board of claim 3, **characterized in that** the feature includes one of a varying thickness, a hole, a groove, a varying material property, and a change in material.

5. A gliding board (1) adapted to cooperate with a pair of foot bindings that secure a rider's feet to the gliding board, comprising:

a running length (2) having two side edges and extending between forward and rear transitions (4,6), the running length having a sidewall (20) extending over at least a portion of the side edges;

an upturned nose (3) at the forward transition (4) having a transition end and a tip (7), the nose being sidewall-free and having a cap construction and a flexibility that varies between the transition end and the tip (7); and  
a tail (5) at the rear transition (6).

6. The gliding board of claim 5, **characterized in that** the nose includes a structural element having at least one feature that provides the varying flexibility.

7. The gliding board of claim 6, **characterized in that** the feature includes one of a varying thickness, a hole, a groove, a varying material property, and a change in material.

8. The gliding board of any one of the preceding claims, **characterized in that** at least one of the nose and tail has a thickness that varies along a length of the nose or tail.

9. The gliding board of claim 8, **characterized in that** the thickness decreases between the transition end and the tip.

10. The gliding board of any one of the preceding claims, **characterized in that** an overall thickness of the nose decreases from approximately 5-8mm

near the transition end to approximately 4-7mm near the tip.

11. The gliding board of any one of the preceding claims, **characterized in that** one of the nose and tail is sidewall-free, being formed with a cap structure.

12. The gliding board of any one of the preceding claims, **characterized in that** the nose or tail is more flexible near the tip than near the transition end.

13. The gliding board of any one of the preceding claims, **characterized in that** the nose and tail have a varying bending property that is different from the other.

14. The gliding board of any one of claims 5 to 13, further comprising a core that extends from the running length at least partially into the nose, **characterized in that** a thickness of the core within the nose decreases between the forward transition and the tip.

15. The gliding board of claim 14, **characterized in that** the thickness of the core decreases from approximately 2mm near the forward transition to approximately 1mm near the tip.

16. The gliding board of any one of claims 1 to 8, **characterized in that** the flexibility of the nose or tail decreases from near the transition end to near the tip.

17. The gliding board of any one of the preceding claims, **characterized in that** the gliding board is a snowboard.

18. The gliding board of any one of the preceding claims, in combination with two foot bindings mounted to the running length of the gliding board.

19. The gliding board of any one of the preceding claims, **characterized in that** the tail is upturned.

20. A method of manufacturing a gliding board having a running length and an upturned nose joined to the running length at a transition, comprising:

providing a core constructed and arranged for incorporation into a gliding board, the core having top and bottom surfaces and lateral sides; providing at least one sidewall element, a top reinforcement layer and a bottom reinforcement layer; and

assembling the top reinforcement layer, the bottom reinforcement layer, the at least one

sidewall element and the core so that (i) the top and bottom reinforcement layers are on opposite top and bottom surfaces of the core, (ii) the at least one sidewall element is secured along a lateral side of the core, and (iii) the nose has a varying bending property.

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21. The method of claim 20, **characterized in that** the nose is more flexible near a tip of the nose than near the transition.

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22. The method of any one of claims 20 and 21, **characterized in that** the assembling step includes constructing the nose to have a varying flexibility to provide improved float in powder snow.

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23. The method of any one of claims 20 to 22, **characterized in that** the step of providing a core comprises providing a core having a nose end that tapers from near the transition toward the nose tip.

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24. The method any one of claims 20 to 23, **characterized in that** the assembling step includes forming the nose to have a cap construction.

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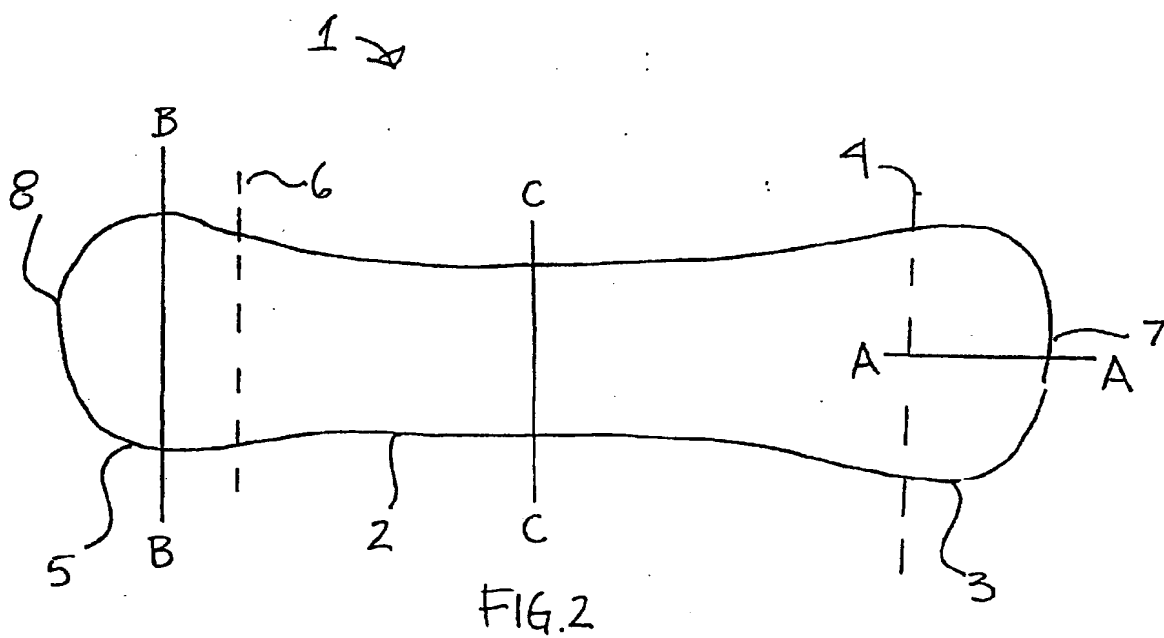
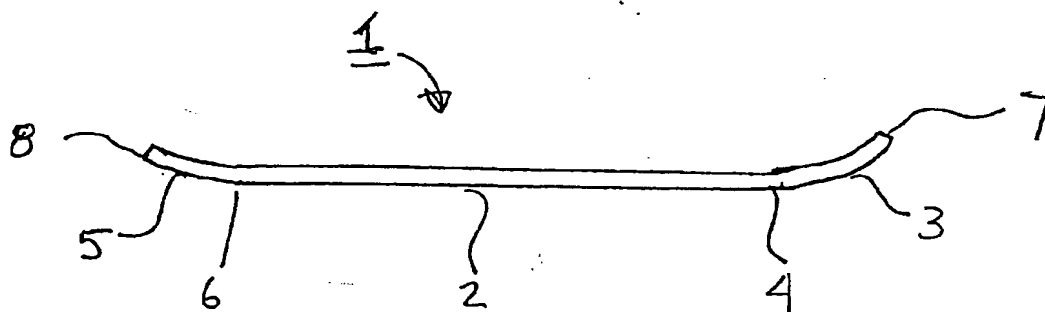
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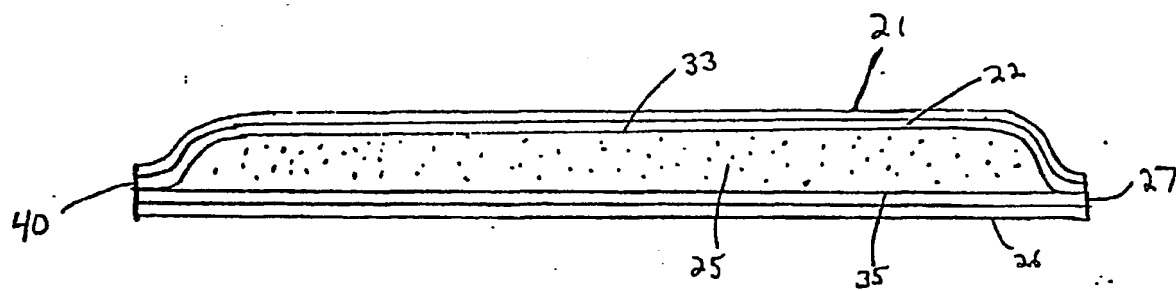
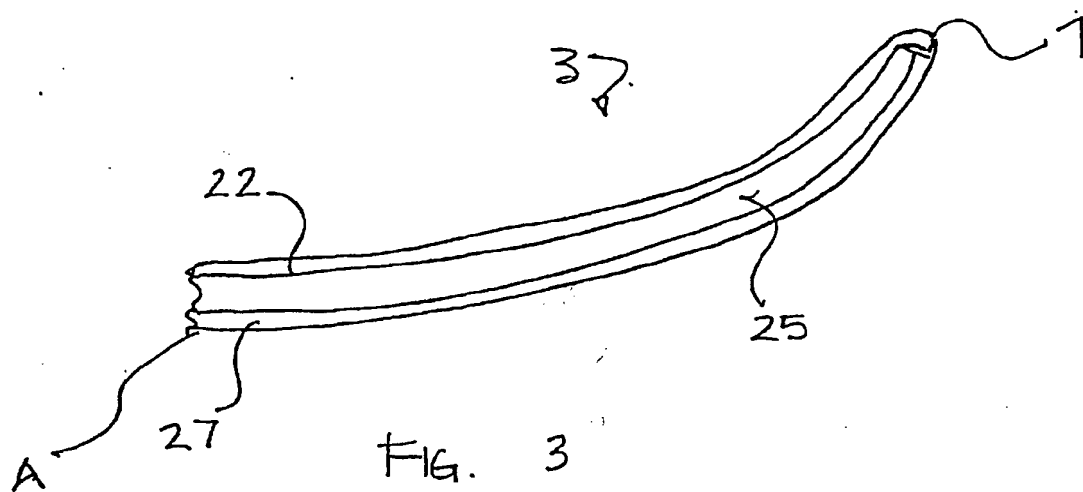
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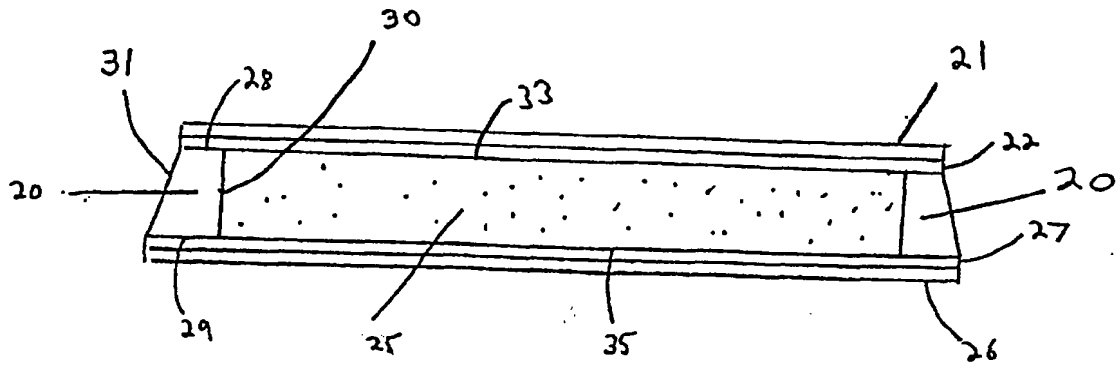


FIG. 5

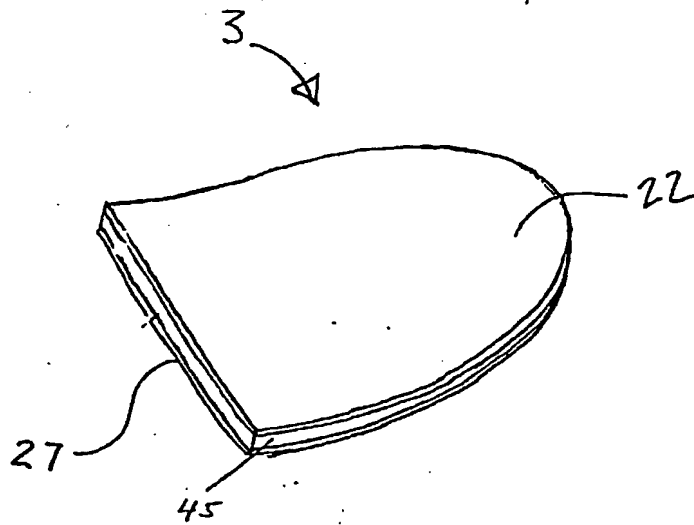


FIG. 6



European Patent  
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# EUROPEAN SEARCH REPORT

Application Number  
EP 02 00 0133

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Place of search		Date of completion of the search	Examiner
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